

## 3-INPUT/2-INPUT VIDEO SWITCH

### ■ GENERAL DESCRIPTION

The NJM2513 is a switching IC for switching over from one audio or video input signal to another. Internalizing 3 input-1 output, and 2 input-1 output and then each set can be operated independently. Side of 2 input-1 output are "Clamp type", and they can be operated while setting DC level fixed in position of the video signal. It is a higher efficiency video switch, featuring the operating voltage 4.75 to 13V, the frequency feature 10MHz, and then the Crosstalk 75dB (at 4.43MHz).

### ■ FEATURES

- Operating Voltage (+4.75V ~ +13V)
- 3 Input-1 Output/2 Input-1 output
- Crosstalk 75dB(at 4.43MHz)
- Wide Bandwidth Frequency 10MHz(2V<sub>P-P</sub> Input)
- Package Outline DIP16, DMP16
- Bipolar Technology

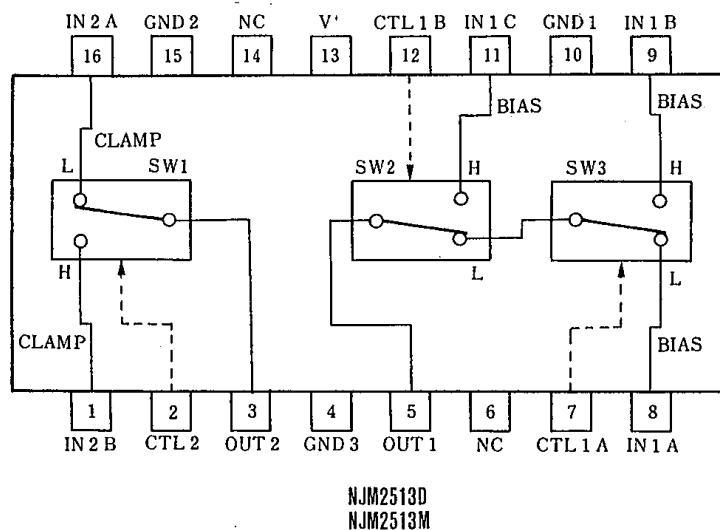
### ■ RECOMMENDED OPERATING CONDITION

- Operating Voltage V<sup>+</sup> 4.75~13.0V

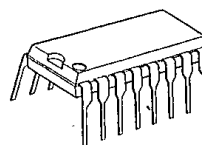
### ■ APPLICATIONS

- VCR, Video Camera, AV-TV, Video Disk Player.

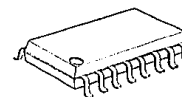
### ■ BLOCK DIAGRAM



### ■ PACKAGE OUTLINE



NJM2513D



NJM2513M

## ■ MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	14	V
Power Dissipation	P <sub>D</sub>	(DIP16) 700 (DMP16) 350	mW
Operating Temperature Range	T <sub>opr</sub>	-40~+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40~+125	°C

## ■ ELECTRICAL CHARACTERISTICS

(V<sup>+</sup>=5V, Ta=25°C)

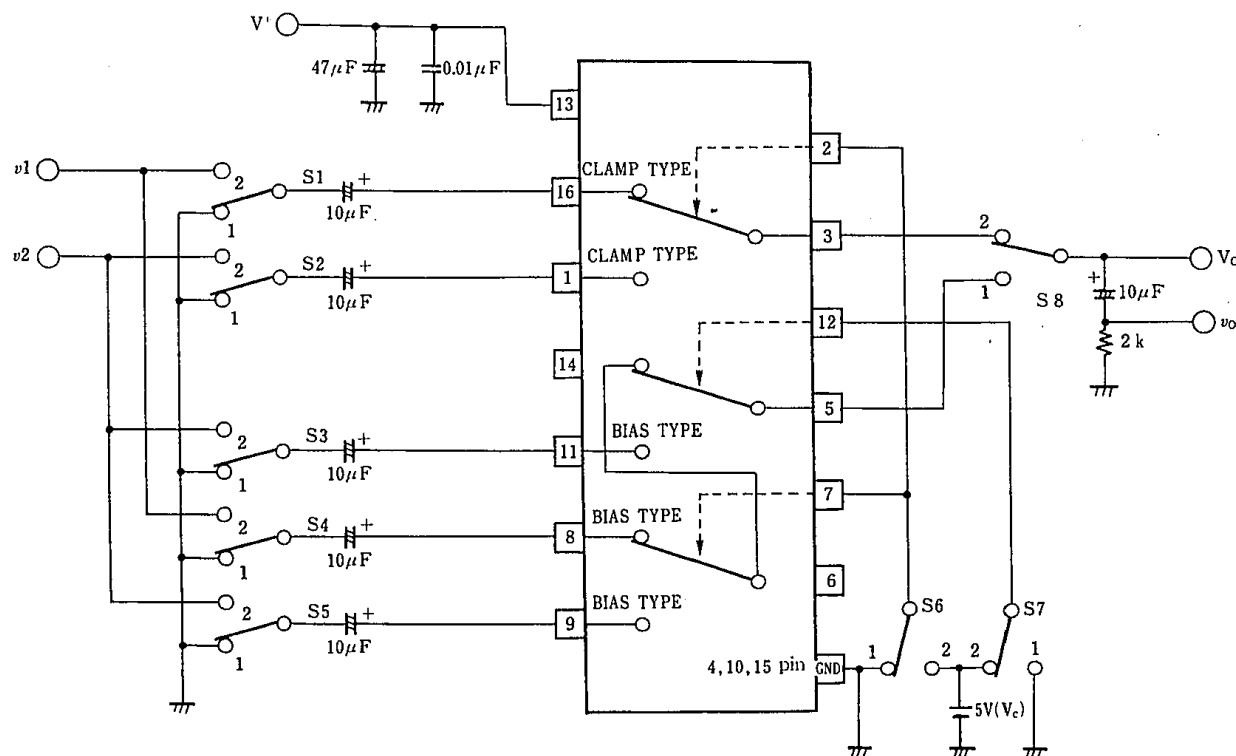
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	I <sub>CC1</sub>	V <sup>+</sup> =5V (Note1)	6.7	9.7	12.7	mA
Operating Current (2)	I <sub>CC2</sub>	V <sup>+</sup> =9V (Note1)	8.6	12.3	16.0	mA
Voltage Gain	G <sub>V</sub>	V <sub>I</sub> = 100kHz, 2V <sub>P-P</sub> , V <sub>O</sub> /V <sub>I</sub>	-0.6	-0.1	+0.4	dB
Frequency Gain	G <sub>F</sub>	V <sub>I</sub> = 2V <sub>P-P</sub> , V <sub>O</sub> (10MHz)/V <sub>O</sub> (100kHz)	-1.0	0	+1.0	dB
Differential Gain	DG	V <sub>I</sub> = 2V <sub>P-P</sub> , Standard Staircase Signal	—	0.3	—	%
Differential Phase	DP	V <sub>I</sub> = 2V <sub>P-P</sub> , Standard Staircase Signal	—	0.3	—	deg
OutPut offset Voltage (1)	V <sub>OS1</sub>	(Note2)	-15	0	+15	mV
OutPut offset Voltage (2)	V <sub>OS2</sub>	(Note3)	-25	0	+25	mV
Crosstalk	CT	V <sub>I</sub> = 2V <sub>P-P</sub> , 4.43MHz, V <sub>O</sub> /V <sub>I</sub>	—	-75	—	dB
Switch Change Over Voltage	V <sub>CH</sub>	All inside Switches ON	2.5	—	—	V
Switch Change Over Voltage	V <sub>CL</sub>	All inside Switches OFF	—	—	1.0	V

(Note1) S1=S2=S3=S4=S5=S6=S7=1

(Note2) S1=S2=S3=S4=S5=1, S8=2, S7=1, S6=1→2 Measure the output DC voltage difference

(Note3) S1=S2=S3=S4=S5=1, S8=1, S7=1, S6=1→2 (S6=1, S7=1→2) Measure the output DC voltage difference

## ■ TEST CIRCUIT



This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.

■ TERMINAL EXPLANATION

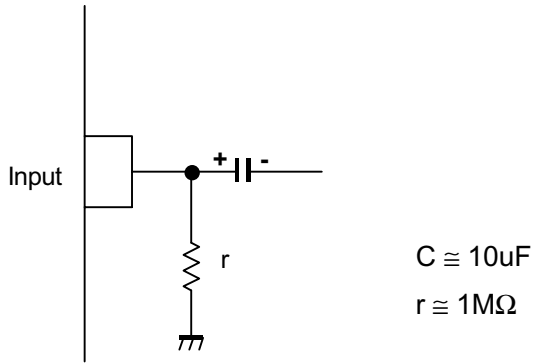
PIN NO.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT
8 9 11	IN 1 A IN 1 B IN 1 C (Input)	2.5V $\left(\frac{1}{2}V^+\right)$	
16 1	IN 2 A IN 2 B (Input)	1.5V $\left(\frac{3}{10}V^+\right)$	
7 12 2	CTL 1 A CTL 1 B CTL 2 (Switching)		
5	OUT 1 (Output)	1.8V $\left(\frac{1}{2}V^+ - 0.7\right)$	
3	OUT 2 (Output)	0.8V $\left(\frac{3}{10}V^+ - 0.7\right)$	
13	V+	5V	
15 4 10	GND 1 GND 2 GND 3		

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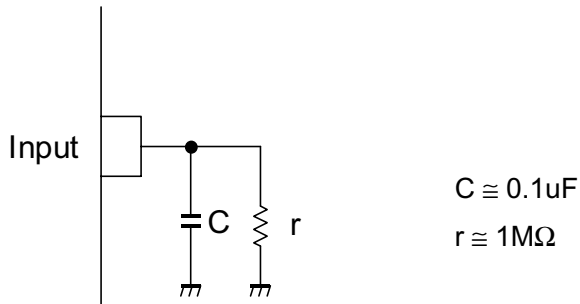
# NJM2513

## ■APPLICATION

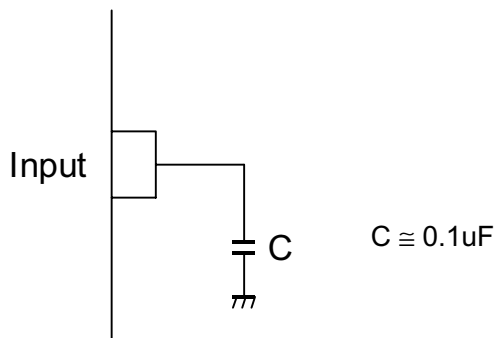
This IC requires  $1\text{M}\Omega$  resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



This IC requires  $0.1\mu\text{F}$  capacitor between INPUT and GND,  $1\text{M}\Omega$  resistance between INPUT and GND for clamp type input at mute mode.



This IC requires  $0.1\mu\text{F}$  capacitor between INPUT and GND for bias type input at mute mode.



### [CAUTION]

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